Uncertainty and Political Perceptions

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While the world of politics is uncertain, previous work, both theoretical and empirical, has largely failed to incorporate this uncertainty into the analysis of public opinion and electoral behavior. In this article we discuss measures designed to elicit the uncertainty survey respondents feel about their political perceptions. These measures exhibit response patterns which are interpretable, substantively interesting, and consistent with a model relating uncertainty to citizen information costs. We also find that variation in respondent uncertainty leads to different models of perception of political figures and speaks to models of the survey response. As a practical matter, our measures can easily be incorporated into existing surveys with no disruption of continuity.

Introduction

Citizens face an inherently uncertain political world yet they are nonetheless frequently called upon to make consequential political choices. How they incorporate uncertainty into their perceptions and into their decision making is the focus of our research. We argue that while uncertainty is ubiquitous, it can be measured and the variation in uncertainty across individuals and political contexts stems from systematic differences in cognitive processes and the objective political world of the citizen. Our purpose here is to develop measures of uncertainty, to examine their properties, and show that they are consequential for both survey responses and for models of candidate perception.

Uncertainty has been discussed in the social choice and game theoretic literatures as imperfect and incomplete information. However, the behavioral and empirical literatures have largely ignored imperfect information except to stress the prevalence of nonattitudes or limited cognitive capacities. Ignoring the ubiquity of uncertainty in political preferences and decision making is misguided if our

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premise is correct that citizens are never certain about their political choices. It is theoretically misguided as well if politics is inherently uncertain.

A modest number of recent works have begun to address both the theoretical and empirical ramifications of uncertainty for political choice and perception (Aldrich et al. 1982; Alvarez 1992; Bartels 1986; Brady and Ansolabehere 1989; Enelow and Hinich 1981; Enelow and Hinich 1984; Franklin 1991; Page 1978; Palfrey and Poole 1987; Shepsle 1972). In addition, recent developments in the theory of the survey response are closely connected to respondent uncertainty (Zaller and Feldman 1992).

What is missing from these works is a consensus on how to measure and model uncertainty. Some use indirect indicators based on other survey measures (Alvarez 1992; Bartels 1986) while others rely on statistical models in which uncertainty appears as a parameter which is estimated (Franklin 1991). In one case, direct measurement of uncertainty has been attempted, albeit with disappointing results (Aldrich et al. 1982). Each of these approaches has produced rewards but the distance of most indicators from direct measures of respondents' subjective uncertainty is problematic. When direct measurement is unavailable, we are forced to rely on statistical modeling and assumptions about the role of unobserved latent variables. We can make considerable progress in this fashion, as the citations demonstrate, but we could make more progress if we had direct measures of our variables. Our aim in this article is to develop such direct measures and demonstrate their properties and effects.

Uncertainty, as we approach it, is inherently subjective. A citizen is uncertain if he or she feels uncertain. We are free to construct a wide variety of formal and statistical models to represent this subjective feeling and to assess the fit of these models to data. But at root, it is the individual who feels uncertain or not, and that feeling is not affected by our poor attempts at formalization. Rather than develop a model and then devise a measure which comports with the model, we prefer to develop the most direct measure we can. If this measure turns out to work well in our models, then this encourages our modeling. If not, then perhaps the model does not represent well the respondent's subjective state, but this failure does not deny the subjective experience.

In keeping with this approach, we simply ask respondents how certain they feel about their own preferences and the positions of political figures. Such a design is no more and no less fraught with difficulties than any survey measure of subjective states. We must assume that language provides an adequate medium for the reporting of feelings and that the plain words of the survey item are clear enough for the respondent to understand what we are asking. Our measures, then, are the respondent's report of their subjective uncertainty, in terms of the response options we provide. We can then assess whether these measures appear valid based on our expectations of how they should relate to other variables.

Our theoretical model (as opposed to our measurements) is based on conceiving of uncertainty as a probability distribution over possible outcomes. Such a

distribution has an expected value and a variance. The larger the variance, the less certain is the outcome. This abstraction is common to both economic notions of uncertainty (Enelow and Hinich 1984; Shepsle 1972) and mathematical-psychological conceptions. As this article is primarily concerned with the empirical performance of our measures, we have relatively little to say about this formalization here.

In the next section of this article we discuss the survey questions we developed, the methodology of the national telephone survey we undertook, and the response patterns these survey measures elicited. The subsequent sections contain a set of analyses designed to validate these as measures of uncertainty, and then to use the measures to better understand the policy perceptions of citizens. We close with a discussion of the implications of our research.

Survey Measures of Uncertainty

The data we analyze comes from a national telephone survey conducted in the fall of 1991 and winter of 1992 by professional interviewers at the Letters and Science Survey Center of the University of Wisconsin–Madison. A national probability sample of 797 adults from the 48 contiguous states were interviewed. Multiple callbacks were attempted to secure an interview, though no refusal conversion of initially unwilling respondents was done. A CATI system provided randomization of survey forms. Of the sample, 53.2% (424 cases) were assigned to the first survey group (form A), and 46.8% (373 cases) were assigned to the second group (form B). Our analysis in this article is confined to form B respondents. The survey was in the field from October 2, 1991, until March 5, 1992, with the bulk of interviewing occurring from November through February.

Since part of our purpose was the development of new survey measures, we tested two alternative sets of uncertainty questions (forms A and B) using randomly selected half samples. Each respondent was questioned about one of the U.S. senators from their state, the senator being randomly assigned. Respondents in each half-sample were presented a series of questions concerning their preferences and their perceptions of the senator's positions on two policy issues (tax increases and abortion) and on the liberal-conservative ideological dimension using a seven-point scale format.[1]

[1]The wording of our seven-point scales is presented here. These were modified for form A to encourage "range" responses. Since this does not figure in the current article, we present only the form B wording. To measure the senator's perceived position the question was modified by prefixing "What about Senator [*senator's name*] from your state? Where would you place [*senator's name*] on this scale?"

Taxes. Some people feel that the federal government should not raise taxes under any circumstances. Others feel that a tax increase is required to reduce the deficit and pay for needed programs. Where would you place yourself on a scale from one to seven, where 1 means you feel taxes should not be raised under any circumstances and 7 means you feel that a tax increase is required to reduce the deficit and pay for needed programs?

Abortion. Some people feel that abortions should be illegal. Others feel that there should be no restrictions on a woman's right to an abortion if she wants one. Where would you place yourself on a

After each seven-point placement of their own position, respondents were asked: "Are you very certain of where you stand on this, pretty certain, or not very certain?" Next, following the placement of the senator, we probed for uncertainty about that position, asking "How certain are you of (senator's name) position on this? Very certain, pretty certain, or not very certain?" These options deliberately parallel the options for the respondent's own position. Respondents were randomly assigned to one of the senators from their state to maximize variation in characteristics of the senators we used as perceptual objects.

The variation in the uncertainty question wording between forms A and B compared a dichotomous response option with a three-point ordinal scale to examine respondents' abilities to make finer distinctions about their level of uncertainty.[2] Our preliminary analysis of these survey items demonstrated the superiority of the three-point ordinal scale so we will focus exclusively on these items here.[3]

Table 1 shows the marginals for certainty of own position and of the senator's position.[4] The top panel in table 1 (respondent's own certainty) shows first that many more respondents were certain of their opinions on the abortion scale than on the other two scales, as we would expect. More than three-fourths of the respondents stated that they were very certain of their abortion position, compared to 50.4% on the liberal–conservative scale and 41.8% on the tax increase issue.

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scale from one to seven, where 1 means you feel abortions should be illegal and 7 means you feel there should be no restrictions on a woman's right to an abortion?

Liberal/Conservative. In politics, some people have very liberal political views while other people have very conservative political views. Where would you place yourself on a scale from one to seven, where 1 means you have very liberal political views and 7 means you have very conservative political views?

[2]Another question wording variant which we do not analyze in this article concerned the wording of the seven-point scales. Form A respondents were read an introduction to the seven-point scale question designed to reveal the uncertainty in their perceptions, called "range formats," which are nearly identical to those employed in the 1980 National Election Study's Pilot Study. This question format was used in form A for both the respondent's own position on each issue, as well as their perception of the senator's position. These invite the respondent to place themselves or the senator within some range, rather than at a single point, if they feel uncertain about the exact position. Form B respondents were read introductions to the seven-point scale questions very similar to that encountered in the usual NES survey, not utilizing the "range formats." Unfortunately, the results of the range format were disappointing. Only 6.0% of respondents gave a range response for their own position on the tax increase issue, 4.8% on the abortion scale, and 6.9% on the liberal–conservative dimension. This compares to a 1.3% rate of *unsolicited* range placement in Form B on both the tax and abortion scales, and 2.6% on the liberal–conservative scale.

[3]The substantive conclusions of our various analyses are virtually identical for the form A dichotomous items.

[4]Respondents are asked the certainty items only if they are able to respond to the corresponding seven-point scale. This accounts for the variation in sample sizes across cells of the table. The maximum possible N is 373. Including this source of nonresponse in the table does not alter our conclusions. If failure to respond to the seven-point scale represents extreme uncertainty, then table 1 understates the absolute level of uncertainty but not the relative levels of uncertainty which are our focus. The reader can easily recompute the percentages in the table for comparison.

TABLE 1

RESPONDENT CERTAINTY BY OBJECT AND ISSUE

Response to Self-Placement Certainty Question						
	Taxes		Abortion		Lib/Con	
Response	*N*	%	*N*	%	*N*	%
Very	146	41.8%	272	77.7%	180	50.4%
Pretty	166	47.6%	68	19.4%	144	40.3%
Not	35	10.0%	8	2.3%	27	7.6%
DK	1	0.3%	1	0.3%	1	0.3%
NA	1	0.3%	1	0.3%	5	1.4%
Totals	349		350		357	
Response to Senator Certainty Question						
	Taxes		Abortion		Lib/Con	
Response	*N*	%	*N*	%	*N*	%
Very	24	12.2%	35	21.5%	46	21.2%
Pretty	72	36.6%	55	33.7%	109	50.2%
Not	98	49.8%	71	43.6%	60	27.7%
DK	1	0.5%	2	1.2%	1	0.5%
NA	2	1.0%	0	0.0%	1	0.5%
Totals	197		163		217	

Also, there was a low item nonresponse rate on this question format, less than 1% on the first two dimensions, and less than 2% on the liberal–conservative scale.

In the bottom panel of table 1, we see a considerable amount of uncertainty among those respondents who placed the senator on the scale. Almost 50% said they were not very certain about their senator's position regarding a tax increase, with 43.6% and 27.7% giving the same answer on the abortion and liberal–conservative scales, respectively.

In comparison with self-placements, uncertainty about senator placements is far greater. In table 1, no more than 10% said they were not very certain about their own position. Yet no less than 28% and as many as half say they are not very certain of the senator's position. This demonstrates the vastly greater uncertainty concerning senator's positions and it also shows that the not very certain option is a very useful category when uncertainty levels are high. While few used this category when describing themselves, its use is common when senators are the object of uncertainty.

This first glance at the data reveals several important bits of evidence. First, the response patterns provide *prima facie* evidence that the questions are eliciting the desired responses. Second, the amount of nonresponse on these items is very low, meaning that we are not asking respondents questions which are so complex or

confusing that they have trouble providing an answer. Third, the three-point measure captures wide variations in uncertainty, as demonstrated by the slight use of the most uncertain category when describing self-placement as compared to the very substantial use of this category when describing the senator.

While respondents seem relatively certain of their own positions on each of the issue scales, they appear quite unsure of their senator's stand. This suggests that the locus of political uncertainty is less in what people think they want and more a matter of being unable to say with much confidence what is being offered by their elected representatives. If this uncertainty is constant across representatives, it is an impairment to choice but not especially loaded with political import. If, however, candidates are able to manipulate such uncertainty, as suggested by Franklin (1991), then uncertainty becomes an inescapable component of the politics of representation.

A further substantive conclusion from these simple data is that voters are not uniformly handicapped by nonattitudes or cognitive limitations. If respondents were in fact finding it difficult to understand our issues, we would expect them to exhibit similar levels of uncertainty about both themselves and the senator. Instead, we find a dramatic contrast in uncertainty. This strongly suggests that when voters have sufficient information they are generally able to form rather confident positions. But when faced with either lack of information or ambiguous signals, their reported uncertainty soars. This rules out a simple nonattitudes explanation for our results and shows that uncertainty responses are able to discriminate across objects within a single issue.[5]

The Validity of the Uncertainty Survey Items

In this section, we demonstrate that respondents vary in their measured uncertainty by information levels and information costs, and by the availability of contextual political information. Our approach validates the survey measures by showing that they tap into the factors they are designed to measure. Here, we show that the uncertainty items are correlated in expected ways with a set of explanatory variables (Cook and Campbell 1979).

To test these models, we use a set of explanatory variables accounting for several demographic factors, political information held by the respondent, as well as the ideological extremity of the senator, whether the senator was a member of two relevant committees (Finance or Labor and Human Resources), and the length of time since the senator has had to face an election.[6] Our hypotheses for these

[5]It would be useful to relate our measures of uncertainty to response stability. A new panel data collection will soon allow us to conduct this analysis.

[6]These were coded as: education 1 (less than high school degree), 2 (only high school degree), 3 (more than high school), 4 (post-high school degree); race 0 if white and 1 if minority; religion 1 if a Catholic or Baptist, 0 otherwise; political information 0 if unable to rate Rehnquist on a feeling thermometer and 1 if able to rate Rehnquist, following the approach advocated by Zaller (1989, 1991); senator's ideological extremity was given by a folded ADA scale, where 0 indicated extreme and 50

indicators follow the logic in Downs (1957): those individuals with lower information costs are expected to be better informed about their political perceptions. Thus, those with higher educational levels and more political information are expected to be more certain in their perceptions. The minority status and gender variables capture the particular sensitivity of these groups to certain issues while their position in society may act to raise other information costs. We expect women to be more attuned to information about abortion while minorities should be more concerned for maintaining social programs even if taxes go up. This greater personal stake is expected to lower information costs for these issues. Outside these areas of increased personal stakes, however, we expect information costs to be higher because of the more peripheral social and political position of these groups. The religion indicator is intended to show that those who are members of certain religious groups might be better informed about the abortion issue than others. The data about the senators are from *Congressional Quarterly Weekly Report,* May 1992. The ADA scale was folded into an ideological extremity index. The variable for the senator's last electoral stand is the difference between the year of their last election and the current year. The committee membership variables are dummy indicators for two policy-relevant committees, Senate Finance (taxes) and Labor and Human Resources (abortion). Our hypotheses regarding these indicators are that respondents with more ideologically extreme representatives, those with the most recently elected senators, and those with senators who are policy specialists on tax and social policies, should be more confident in their perceptions of their representatives than other respondents, either through a cognitive inference process drawing upon this information about their representative, or through greater information about the senator's position on these issues. In our subsequent analysis we employ a one-tail test, since we specify the direction of the effects we expect. Since our sample is quite limited, approximately 200 cases, we also allow a generous .10 significance level.[7]

We coded the responses so that the high category was the most certain response and the low the least certain. Given the ordered nature of this categorical variable, we estimated ordered probit models for these survey items following McKelvey and Zavoina (1975), given in table 2. This table is organized into three columns, where the first column gives the maximum-likelihood estimates and their associated standard errors for the tax increase question, the middle column for the abortion item, and the last column for the liberal–conservative item.

In table 2 we find evidence that these survey responses are systematically related to our independent variables. Almost all of the variables are correctly signed and 8 of 12 coefficients are statistically significant. Education and political

moderate; Finance member 0 if not a member of Senate Finance and 1 if member; Labor and H.R. Member 0 if not a member of Labor and Human Resource and 1 if member; and last election was calculated as the year of the senator's last election minus 1992.

[7]All of the models in this article were estimated in Dubin and Rivers' (1989) SST, version 2.0.

TABLE 2

ORDERED PROBIT MODELS OF RESPONDENT CERTAINTY

Independent Variables	Taxes	Abortion	Lib-Con
Intercept	0.87**	1.54**	0.86**
	(0.22)	(0.27)	(0.22)
Education	0.15**	0.08	0.24**
	(0.06)	(0.07)	(0.06)
Political info	0.10	0.32**	0.16
	(0.13)	(0.16)	(0.14)
Gender	−0.22**	0.31**	−0.15
	(0.13)	(0.16)	(0.13)
Race	0.41**	−0.31*	−0.26*
	(0.20)	(0.22)	(0.20)
μ	1.52**	1.25**	1.51**
	(0.10)	(0.15)	(0.11)
LLR(d.f.)	19.7(4)**	17.1(4)**	38.7(4)**
p-value	.0006	.0018	.0000
% correct	53.3	78.1	52.6
$r_{y,\hat{y}}$	0.21	0.18	0.27
N	345	343	346

Note: Standard errors in parentheses. μ is the probit threshold between response categories. The first threshold is normalized to zero.

*p = 0.10; **p = 0.05; both one-tailed tests.

information have correctly signed coefficients for each issue, three of which reach conventional levels of significance. These coefficient estimates are consistent with our hypothesis that those with lower information costs are more certain in their own positions.

The log-likelihood ratio test strongly rejects the null hypothesis that none of the independent variables are related to our measure of respondent uncertainty. We also present two goodness of fit measures. First, the percent correctly predicted ranges from 52.6% to 78.1%. Second, the correlation between observed outcomes and the predicted values from the probit model (labeled $r_{y,\hat{y}}$ in the table) ranges from .18 to .27.[8]

We have hypothesized that gender and race should reflect social factors generally leading individuals in these groups to have higher information costs. On issues which touch the group directly, however, we hypothesized lower information costs and hence greater certainty. This expectation is supported. Racial minorities

[8]The problematic nature of goodness of fit measures for limited dependent variable models are well known (see Greene 1993, 651–53). Our position is that the log-likelihood ratio tests the natural null hypothesis and has the virtue of being firmly grounded in statistical theory, something goodness of fit measures lack. We present the two goodness of fit measures with the understanding that 100% correct prediction is more likely to result from serious troubles with the model rather than a perfect model (Greene, 651), and that the correlation measure presented is not bounded above by 1.0 but rather by something less than 1.0 which depends on the distribution of the outcomes.

are more certain of their tax positions than whites, while less certain of their ideological and abortion positions, *ceteris paribus*. Likewise, women are more certain of their position on abortion than men, but less certain than men of their tax position while the ideological position results show no consistent difference. It is not much of a stretch to conclude that these patterns are due to the peculiar relationships of these groups to particular issues. While our evidence is surely tentative, it is perhaps not too great a leap to conclude that where issues touch more directly on the individual, preferences are likely to be more precisely defined.

Next, we estimated similar models examining the uncertainty responses for the senator's issue positions and those are presented in table 3. We made one significant

TABLE 3

ORDERED PROBIT MODELS OF CERTAINTY OF SENATOR'S POSITION

Independent Variables	Taxes	Abortion	Lib-Con
Intercept	0.14	−0.45*	0.26
	(0.24)	(0.27)	(0.24)
Education	−0.03	0.05	0.05
	(0.06)	(0.06)	(0.06)
Political info	0.49**	0.59**	0.45**
	(0.13)	(0.13)	(0.13)
Gender	−0.47**	−0.31**	−0.51**
	(0.12)	(0.13)	(0.12)
Race	0.14	0.02	−0.10
	(0.19)	(0.19)	(0.19)
Ideological extremity	0.009**	0.006*	0.0005
	(0.004)	(0.004)	(0.004)
Finance committee	0.09		
	(0.15)		
Labor–H.R.		0.30*	
Committee		(0.18)	
Last election	−0.02	−0.04	−0.004
	(0.04)	(0.04)	(0.04)
Religion		0.22*	
		(0.13)	
μ_1	0.78**	0.60**	0.47**
	(0.06)	(0.05)	(0.05)
μ_2	1.75**	1.29**	1.53**
	(0.10)	(0.09)	(0.09)
LLR(d.f.)	55.5(7)**	49.1(8)**	55.2(6)**
p-value	.0000	.0000	.0000
% correct	46.4	54.8	44.7
$r_{y,\hat{y}}$	0.33	0.33	0.34
N	351	352	349

Note: Standard errors in parentheses. μ is the probit threshold between response categories. The first threshold is normalized to zero.

*p = 0.10; **p = 0.05; one-tailed tests.

modification to our coding of the dependent variable in these analyses. Substantial numbers of respondents failed to place their senator on each seven-point scale. In this case, we did not ask the uncertainty question, having just been told the respondent did not know where the senator was located. This leads to attrition of cases. However, it also offers an opportunity. Bartels (1986) uses the "don't know" response as an indicator of uncertainty. In our case, it is natural to treat these "don't know" respondents as more uncertain than those who place the senator, but then say they are not very certain of the location. We therefore combine don't know responses to the placement item with the uncertainty item, coding don't knows below the "not very certain" category. This has the virtue of avoiding sample selection effects while showing how Bartels' approach can fit into our own.

Among the demographic variables in the ordered probit models, the indicator for gender is negatively signed and statistically significant in all models. This holds even for the abortion item, where earlier we saw that women were more certain than men about their own position. It appears that the earlier effect does not carry over to information about candidates but is restricted to information about the self. The effects of race are not noticeably different from zero. However, the religion indicator is positive and significant in the abortion equation, as expected. Similarly, the political information indicator is positive and strongly significant in all models. The committee membership indicator is correctly signed but is statistically significant in only the abortion model. There is no indication, though, that recency of election plays any role. And contrary to our expectations, the ideological extremity indicator is always positive, and twice significant, indicating that respondents were more certain of more moderate senators.

We demonstrated in this section that the measures we advocate for directly measuring perceptual uncertainty are related to various criterion variables in reasonably predictable ways. This was accomplished through a series of models in which we have shown that the responses in our survey to these questions varied systematically across respondents in the patterns we would expect were these questions measuring uncertainty. Therefore, we can feel reasonably confident that our questions are valid measures of perceptual uncertainty. However, there remains the issue of the utility of these measures for our understanding of substantive responses to politicians. This is the topic of the next section.

Uncertainty and the Perception of Political Figures

While uncertainty may be ubiquitous it would remain uninteresting if it were without consequences. In this section, we demonstrate two consequences of uncertainty for the perception of political figures. First, we consider the effect of uncertainty on the distribution of responses. Second, we show that perceptions are structured differently among certain and uncertain respondents.

There has been little work to guide our efforts in this area. The primary avenue through which respondent uncertainty might influence perceptions has been

described by a handful of researchers (Alvarez 1992; Brady and Ansolabehere 1989; Bartels 1988; Franklin 1991; Shepsle 1972). This work has conceptualized respondent perceptions as probability distributions, with a central tendency and a variance. The larger the variance the greater the uncertainty.

There are two ways in which respondents might answer survey questions based on this model. First, respondents might draw an observation from the distribution and report the position drawn. We call this the "random sampling" response model. Such a model would be generally compatible with the survey response model developed by Zaller and Feldman (1992). The variability in individual responses would thus provide an indicator of the underlying respondent uncertainty, which we could estimate.[9] This model was used by Franklin (1991) to estimate campaign-induced uncertainty.

Alternatively, respondents might report the central tendency of their distribution of perceptions, which we call the "expected value" response model. In this case, the variance of the distribution would be independent of the expected value. Thus, the observed responses would tell us little about the underlying uncertainty. For example, two respondents might both have a perceptual distribution centered at the same point, while one has a large variance and the other a small variance. If respondents report the expected value, then both will provide the same reported perceptions.

While the variance and expected value are independent in principle, in practical survey situations they are related. A natural way to represent maximum uncertainty on a seven-point issue scale is as a uniform distribution. Such a distribution naturally leads to an expected value of 4.0. Thus if respondents report expected values, we should expect the most uncertain to report positions concentrated around 4 on our issue scales. If respondents sample randomly from the entire distribution however, as predicted by the first response model, we should see responses spread more or less evenly across the issue scale. In either case, uncertainty would have significant consequences for our survey measures.

Our first cut at this effect is presented in table 4. Here we simply present the distribution of perceived senator positions by our measures of uncertainty. The chi-square test confirms what is apparent to the eye: respondents who say they are more uncertain of the senator's position have an increased affinity for placing the senator near the midpoint on each issue scale.[10]

As a rough cut, these results offer greater support for the expected value response model than for the random sampling model. However, they suffer from the fact that there is variability in the objects of perception which are not accounted for in the table. This is most apparent from the "certain" column of table 4 which

[9]Alternatively, several samples could be taken and the mean of these samples could be reported. In either case, the variance of the responses would be related to the variance of the underlying distribution.

[10]A similar result was discussed by Brady and Sniderman, appendix 2 (1985).

TABLE 4

RESPONSE PATTERNS TO SEVEN-POINT SCALES
PERCEIVED SENATOR'S POSITION BY CERTAINTY

Lib / Con			
Position	Not	Pretty	Certain
1	5.0	4.6	21.7
2	5.0	5.5	13.0
3	13.3	16.5	6.5
4	31.7	23.9	8.7
5	23.3	25.7	13.0
6	13.3	12.8	6.5
7	8.8	11.0	30.4
χ^2			38.4‡
N	66	109	46

Abortion			
Position	Not	Pretty	Certain
1	9.9	29.1	22.9
2	5.6	14.6	11.4
3	21.1	7.3	2.9
4	25.4	12.7	11.4
5	16.9	14.6	0.0
6	5.6	10.9	8.6
7	15.5	10.9	42.9
χ^2			39.7‡
N	71	55	35

Taxes			
Position	Not	Pretty	Certain
1	13.3	13.9	29.2
2	3.1	9.7	4.2
3	24.5	11.1	12.5
4	24.4	15.3	8.3
5	22.5	22.2	8.3
6	5.1	15.3	8.3
7	7.1	12.5	29.2
χ^2			29.4‡
N	98	72	24

Note: ‡ indicates a χ^2 significant at the $p = 0.05$ level.

appears to suggest that high certainty respondents are apt to pick one extreme or the other. This is misleading, however, for it is likely that respondents who place their senator at 1 are responding to a different senator from those who place their senator at 7.

To remove this confounding effect, while estimating the impact of uncertainty on responses, we used both binary and ordered probit models. The binary probit models we report here were estimated for the liberal–conservative scale.[11] We recoded the seven-point placements of each respondent into a binary variable coded 1 for those placing the senator in one of the middle categories (3,4,5) or 0 for those placing the senator on either end of the scale (1,2 or 6,7). The central hypothesis is that uncertain respondents will place their senator in the middle categories, controlling for political information, education, and the senator's ideological extremity.

The results of the binary probit analysis are in the first column of table 5. The certainty variable has a significant negative coefficient, showing that more uncertain respondents are more likely to place the senator in the middle of the scale while more certain respondents are less likely to use the middle range.

As an additional test of this hypothesis, we estimated ordered probit models using the full seven-point response. If uncertain respondents are more likely to use middle categories, after controlling for objective characteristics of the senator, this would show up in the thresholds between categories estimated for certain versus uncertain respondents. We would expect the middle categories to be wider for the uncertain.

The results are in the second and third columns of table 5. The important coefficients in these two columns are the five estimated thresholds, which are denoted by μ_k. Remembering that μ_0 is normalized to zero, μ_1 is the threshold separating responses of 2 and 3, while μ_4 divides responses 5 and 6. Our interest centers on the distance between μ_1 and μ_4. We expect uncertain respondents to have a greater distance between these thresholds, showing that *ceteris paribus* they are more likely to use categories 3, 4, or 5. For the uncertain, this distance is $2.45 - .36 = 2.09$ while for the certain respondents it is $1.56 - .51 = 1.05$. The range for the uncertain is almost twice what it is for the certain, as we expected. This difference also shows up if we focus exclusively on the exact midpoint of the scale, a response of 4. For the uncertain $\mu_3 - \mu_2 = 0.87$ while for the certain it is 0.34. Thus we see that controlling for objective characteristics of the senator, the uncertain respondents are substantially more likely to respond with a placement at or near the middle of the seven-point scale than are respondents who say they are very certain.[12]

These findings have implications for how we understand the survey response and for how we model respondent perceptions of political figures on policy issues.

[11] The results are similar for the abortion and tax scales.

[12] We can also put this in probability terms. A senator whose ideology and party would predict placement in the exact center of category 2 on the seven-point scale, has a .3035 chance of being placed in categories 3, 4, or 5 by a respondent who is certain, and a .4170 chance by an uncertain respondent, an increase of 37.4%.

TABLE 5

PROBIT MODELS OF SEVEN-POINT IDEOLOGICAL SCALE RESPONSES

Independent Variables	Binary	Ordered (Certain)	Ordered (Uncertain)
Intercept	0.83**	−1.54*	2.03**
	(0.33)	(0.86)	(0.56)
Certainty	−0.54**		
	(0.13)		
Political info.	0.18		
	(0.15)		
Education	0.04		
	(0.06)		
Ideological	−0.00		
extremity	(0.00)		
Sen. ideo.		0.04**	−0.002
		(0.01)	(0.007)
Sen. party		1.57**	−0.42
		(0.76)	(0.42)
μ_1		0.51**	0.36**
		(0.12)	(0.14)
μ_2		0.75**	0.93**
		(0.11)	(0.14)
μ_3		1.09**	1.80**
		(0.12)	(0.13)
μ_4		1.56**	2.45**
		(0.11)	(0.13)
μ_5		1.81**	3.05**
		(0.13)	(0.20)
LLR(d.f.)	22.0(4)**	24.6(2)**	1.44(2)
p-value	.0002	.0000	.4868
% correct	66.8	47.8	31.7
$r_{y,\hat{y}}$	0.29	0.67	0.16
N	214	46	60

Note: Standard errors in parentheses. μ is the probit threshold between response categories. The first threshold is normalized to zero.

*p = 0.10 level; **p = 0.05 level; both one-tailed tests.

It is clear that uncertain individuals are more likely to state that their senator has a moderate position on the scale, regardless of the senator's roll-call record and party. This survey response may reflect the respondent's best guess as to the senator's position, as the expected value response model would suggest. But it has the consequence of reducing the variance in observed responses among the respondents who are least certain of their answers, exactly the opposite of what we would expect under the random sampling response model.

Uncertain respondents are also less likely to use information about political figures in forming perceptions of them. To demonstrate this claim, we estimated a

TABLE 6

PLACEMENT MODELS BY UNCERTAINTY

Independent Variables	Uncertain	Certain
Intercept	4.60	3.80**
	(0.96)	(0.65)
Sen. ideo.	−0.004	0.02**
	(0.01)	(0.007)
Sen. party	−0.89*	0.11
	(0.64)	(0.49)
Resp. ideo.	0.12	−0.10*
	(0.12)	(0.07)
Project inter.	0.002	0.004**
	(0.002)	(0.001)
Adj. R^2	0.00	0.23
N	54	105

Note: OLS estimates. Standard errors in parentheses.
*p = 0.10 level; **p = 0.05 level; both one-tailed tests.

standard model of ideological perceptions, similar to that advanced by Franklin (1991). Here, the respondent's perception of the senator's ideological position is assumed to be a linear function of the senator's position as given by interest group ratings of roll-call voting records (ACU scores in this case), the senator's party, the respondent's own ideological position, and the interaction between the respondent's position and their evaluation of the senator. The first two variables in the perceptual model account for the influence of "objective" information on the respondent's perceptions, while the last two account for projection effects.

This model of perceptions was estimated separately for respondents who were uncertain and those who were certain about their perceptions. Due to the relative paucity of respondents who claimed to be very certain, we combined both the pretty certain and the very certain responses as an indication of relative certainty. The null hypothesis is that these two models should show identical effects of the independent variables on respondent perceptions. The alternative hypothesis is that since uncertain respondents tend to provide a midpoint placement of the senator, the independent variables should have less impact on perceptions. By the same token, the fit of the model should decline among the uncertain.

The estimates of these models are in table 6. For uncertain respondents, the perceptual model fits the data very poorly. Only one variable, that for the senator's party, is significantly different from zero, yet it has the wrong sign. The adjusted R^2 statistic for the model (0.00) demonstrates the lack of fit.

This stands in sharp contrast to the model for the certain respondents. Here we find that both the senator's roll-call voting record and projection effects play significant roles in forming perceptions. This model also fits the data relatively well. The adjusted R^2 statistic is much larger (0.23), indicating that the independent

variables do a reasonable job of predicting where respondents place their senators on the ideological scale.

Conclusion: Uncertainty and Political Perceptions

In this article, we have shown that it is possible to measure subjective uncertainty using practical survey items.[13] The ubiquity of uncertainty in politics, increasingly recognized in theoretical models of elections and decisions, makes such measures highly desirable.

The survey-based measures we have discussed in this article have several virtues. The first is that they appear to be valid measures of uncertainty, since they yield explicable response patterns and are related systematically to individual information costs and objective aspects of the perceptual objects. Our experimentation with different formats, moreover, indicated that the trichotomous measures are preferred.

A second virtue of these measures is that they would cost little to include in future survey instruments. Unlike some survey approaches to measuring uncertainty, such as the "range formats" (Aldrich et al. 1982; Alvarez 1992), the use of these measures of uncertainty would not involve altering the structure of the seven-point policy scales nor would they destroy the historical continuity of issue and ideology measurement in surveys such as the National Election Studies. In fact, all that is required to obtain measures of uncertainty is one additional question for each issue. Further, they can be used with any issue question format, whether seven point, branching or anything else.

A third virtue of these measures is that they reveal patterns in survey responses which have previously been largely ignored. More importantly, they offer substantive and theoretically based explanations for these patterns. While we set out to examine respondent uncertainty, we found that uncertainty could also speak to theories of the survey response.

Methodologically, then, we have shown that uncertainty can be measured in surveys. These uncertainty measures can also help us understand important substantive problems as well. Uncertainty has been shown to influence voter preferences over candidates and the information people employ in their decision making (Alvarez 1992). That is, those with more uncertain information are less likely to be able to base decisions on that information. With our new measures of uncertainty, we will be better able to estimate the effects on uncertainty on voter decision making.

Another substantive area in which these measures can be fruitfully employed will be to determine the extent to which campaigns inform the electorate. From the early days of survey research (e.g., Lazarsfeld, Berelson, and Gaudet 1968) to contemporary studies (e.g., Finkel 1993), researchers have frequently found that

[13]The major previous attempt reported in Aldrich et al. (1982) was not very successful. Our attempt in form A to duplicate this earlier measure produced similarly disappointing results.

campaigns play only a minor role in informing the electorate. Since these uncertainty measures are partly determined by objective information about senators, it is quite likely they are related to information voters obtain about candidates during a campaign. Increases in the flow of information about candidates may reduce uncertainty about candidates' positions (Alvarez 1992) though this is at least partly subject to manipulation by candidates (Franklin 1991). The ability to measure respondent uncertainty using these new measures should help shed light on the role of both the campaign and the campaigners.

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